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ABSTRACT

This document is an outline guide to accompany group discussion sessions on the fundamentals and operationalization of modules. The document begins with an introduction that explains the various outline pages. The following are presented and discussed in the guide: (1) the five elementary characteristics of a module, (2) definitions of modules, (3) a component description of a quasi-legal definition of a module, (4) a list of 13 things to look for in a module, (5) modules needed, (6) a comparison of the module to the thesis of dissertation, (7) an example of how the same modules vary from campus to campus, (8) the need for certain principles of modular development, (9) avoidable module dangers, (10) the various results of modular instruction, (11) ways to put everything together in one workshop, and (12) a flowchart that discusses what can happen when teachers get together to set up a no-fail module system. (RC)

TITLE:

FUNDAMENTALS OF MODULES

(An Outline Guide to Accompany Group Discussion Sessions)

AUTHOR:

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DATE:

June 17, 1975

TABLE OF CONTENTS

INTRODUCTION

FUNDAMENTALS OF MODULES

AN OUTLINED GUIDE TO ACCOMPANY GROUP DISCUSSION SESSIONS

This document is in the form of an outline guide to accompany group discussion sessions.

Each page in this guide is an attempt to structure group discussion towards the operationalization of modules.

Page 1 contains five elementary characteristics of a module. In other words, a module is a self-contained, student-oriented, multi-media learning system of limited time duration. For each of the five components of this definition, each participant is expected to come up with one example followed immediately by an application. As an example of self-contained, one participant might suggest that everything in a module should be placed in an envelope or in a box. The application of this would be to avoid scattering modules in drawers, filing cabinets, and other inaccessible areas. A module should be something that can be taken in hand and given to a specific student, at a specific time, for a specific purpose, and according to a regular timetable. If the module exists partly in the teacher's mind and on partly on paper, this idea of providing a self-contained learning activity package is not readily applicable.

Page 2 goes into a deeper definition of modules by concentrating upon the purposes which an institution would have in organizing a sequence of modular learning opportunities. With modules, learners would be able to learn at their own pace, according to individual learning styles based upon

learner needs, learner abilities, and learner interests. Page 2 is an attempt to structure the discussion by providing an example and an application of each component of the definition. For example, the stress on the learner's own pace indicates that the typical academic requirement of changing all incompletes to failures after six months is unrealistic with the modular system In a modular system, some learners might take six weeks to learn what would take another learner six months. In a modular system, the learner who would need a much longer period of learning time is also permitted to take as long as necessary to achieve competency. Of course, there is no need to be ridiculous and to give students bad habits by not pushing for a reasonable accomplishment time. However, the point is that a reasonable expectation of finishing time for a rapid reader is not the same as a reasonable expectation of finishing time for a slow reader or even for a non-reader. Modules must help individualize by looking at different paces, speeds, and styles of learning.

Page 3 provides a quasi-legal definition of modules. This definition is composed of components A through I.

Pages 4 and 5 look at this quasi-legal definition of a module. For each component of the definition, a component description is given. After each component description, a matrix X-ray is made to show where this component of legal definition of a module fits in to the ALVIR MATRIX. Thus, component A of the legal definition of a module refers to the title component of the ALVIR MATRIX. Similarly, component B of the legal definition of a module refers to the KO, PO, and AO components of the ALVIR MATRIX. Component C of the legal definition of a module refers to the KR component of the ALVIR MATRIX. A similar analysis is made of every part of the legal definition of

a module. One conclusion emerges: if you are able to analyze your module on the ALVIR MATRIX, you are able to meet the legal definition of a module.

Page 6 presents a list of 13 things to look for in a module. Each one of these things to look for in a module is analyzed according to the ALVIR MATRIX model. In the ALVIR MATRIX model, K stands for Knowledge, P stands for Performance, A stands for Attitude, O stands for Objectives, E stands for Evaluation, and R stands for Resources: Thus, KO stands for Knowledge Objectives, PE stands for Performance Evaluation, AR stands for Attitude Resource, and so forth. There are so many things to remember, in going through the legal definition of a module and the list of things you should look for in describing a module, that the ALVIR MATRIX is proposed as a very simple way to make sure that every component is present in a module.

Page 10 talks about THE MODULES YOU NEED. Each one of the examples given is intended to be followed with an application suggested by participants. The example of ~~THE~~ RIGHT DIGESTION shows that a learner should be required to finish a lower level module before going on to a higher level (and more interesting) module in the exact same subject matter area. This teaches the learner discipline, organization, and sequencing of learner activities. Such a systematic process avoids intellectual indigestion.

Page 11 compares the module to the familiar thesis or dissertation. The parallel is drawn along five dimensions. As a iron clad contract, every student will get a different iron clad contract. Sometimes, every monolithic module is pretty much the same for each individual. However, within a flexible module, certain options will be available. Similarly, in the selection of a learning program, one student may choose modules A, B, and C while another student chooses modules A, B, and D. This forces a teacher to determine which

modules are obligatory for everyone and for which modules are optional. This forces the teacher to come up with more than one way of achieving a prespecified obligatory objective. In certain professions and occupations, this optional way of thinking is not always as acceptable as the commonplace of the iron clad contract. However, before beginning the work, the learner should know what is expected and what options are open.

Page 12 shows how customs will vary from campus to campus. In the same way, whenever modules are transported from one campus to another, certain adjustments, whether minor or major, must be made.

Page 13 talks about various phases of curriculum development. For example, an individual campus must decide whether it is in the phase of determining, "What is going on?" or "What should be going on?" There is a vast difference between these two different situations.

Page 14 stresses the need for certain principles of modular development. For example, one danger of doing it all yourself is similar to the non-mechanic husband who took the cuckoo clock apart to repair it because it was making a funny noise. After the alleged repairs, the cuckoo came out and said, "What time is it?" Similar anecdotes are used to make one or more points.

Page 15 talks about avoidable module dangers. The typical teacher was used to spending 7 hours or more each day talking to students. Many friendships developed that lead to professional growth. After working with modules, the same teachers might be spending 8 hours or more writing modules. Unfortunately, this gives the students a very impersonal impression of the teacher who was too busy writing to take time out to talk and answer questions.

Page 16 stresses various results of modular instruction. For example, microfiche is a new word to the beginning student. Sometimes this new word is misheard as micro (that is, little) fish. The teacher must make sure that the idea expressed is done in words that are understandable by the beginning student.

Page 17 shows how to put everything together in one simple workshop The point is made that instead of trying to jam everything we know into a tiny module, it is better to say what we can in the available time and space. Whenever time or space is at a premium, it is better to stress priority activities rather than enumerate each detail.

Page 18 provides a flowchart that discusses what can happen whenever teachers get together in a attempt to set up a no-fail module system. One of the important points to notice is that a number of LEARNING CHECK POINTS are placed in the path of the learner. This avoids leaving the learner completely isolated for a long period of time without any chance for evaluation feedback. Simply making one module is not enough. A system must be developed that enables each learner to keep on going without the constant and frequent intervention of a human teacher. The human teacher will be available for human consultation. However, whatever the module can handle on its own is done in a systematic and impartial fashion. It must not be presumed that modules can completely replace teachers. However, a system wherein a teacher can fall back upon the textbook and modules is better to a system wherein a teacher has nothing but the textbook to rely upon for structuring subject matter, skills, and attitudes. The effort that goes into developing modules can result in a large number of benefits to both teacher and learner.

PRACTICAL APPLICATIONS

Your explanation of a module is interesting, by of what practical benefit is it?

I like what you said about modules, but I simply don't have enough time or enough money to look into the system of modules you proposed.

Are you sure there is much difference between a module and what we used to call a unit of instruction?

I think it's ridiculous to insist that every subject matter be modularized into the same length of time!

Without reinforcement, most modular systems of learning are doomed to failure!

I'm willing to learn about modules, but I'm just not sure that I am convinced

The above comments reflect a wide divergence of opinions about modules. The above comments show that modules can be used or abused.

A module is different from a unit in the fact that a module is student-centered and student-paced. In addition, a module is supposed to be self-contained, that is, the constant intervention of a teacher is usually not required.

There are many different types of modular systems. Some modulars are supposed to be equivalent to 30 hours in length. There is no research conclusion proving exclusively that a 30 hour module length is better than a shorter or longer period of time. The 30 hour module length seems to have arrived from the desire of certain administrators to squeeze all modules into a type of procrustean bed. Procrustes was the ancient Greek tyrant who arbitarily and often ruthlessly disregarded individual differences and special

circumstances. Procrustes was an ancient innkeeper who had only one size bed. A short person was stretched to fit the bed. A tall person had either the head or feet chopped off to fit the size of the bed. Obviously, the effectiveness of Procrustes is too ruthless to be imitated as an educational model in the application of modules.

It is hoped that the discussion outlines provided in this document serve as a worthwhile, complete, and challenging introduction to modules. After all of this reading, the next step is to start developing samples of modules that can be used in individualizing education.

INDIVIDUALIZED LEARNING PACKETS

(DEFINITION: PART I)

DEFINITION	EXAMPLE	APPLICATION
SELF-CONTAINED		
STUDENT-ORIENTED		
MULTI-MEDIA		
LEARNING SYSTEM		
OF LIMITED TIME DURATION		

INDIVIDUALIZED LEARNING PACKETS

(DEFINITION: PART 2)

DEFINITION	EXAMPLE	APPLICATION
TO PERMIT LEARNERS TO LEARN		
AT THEIR OWN PACE		
ACCORDING TO THEIR INDIVIDUAL LEARNING STYLES		
BASED UPON: LEARNER NEEDS		
BASED UPON: LEARNER ABILITIES		
BASED UPON: LEARNER INTERESTS		

A QUASI-LEGAL DEFINITION OF A MODULE

According to USHEW, USOE, official documents and directives for technical specifications, MODULES should include the following:

COMPONENT A An overview of the subject matter area and its place in the instructional system under consideration.

COMPONENT B Objectives stated in behavioral terms.

COMPONENT C Content in the form of basic concepts and generalizations.

COMPONENT D Teaching strategies and learning experiences, described in specific terms.

COMPONENT E Teaching aids.

COMPONENT F Means of evaluation of student progress.

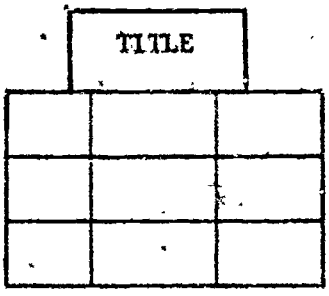
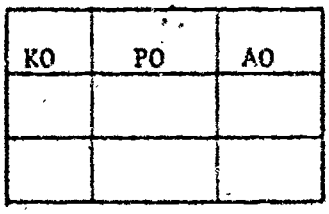
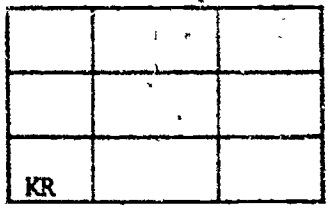
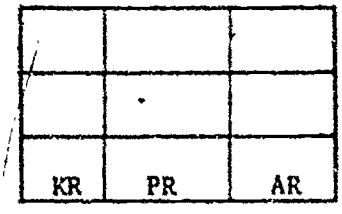
COMPONENT G Student information sheets as needed to serve and support material to modules.

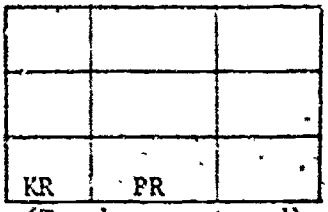
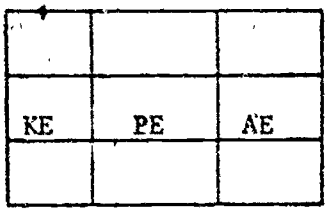
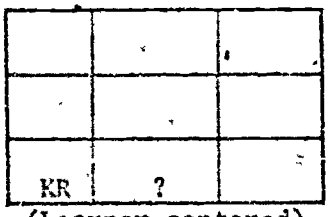
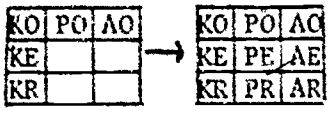
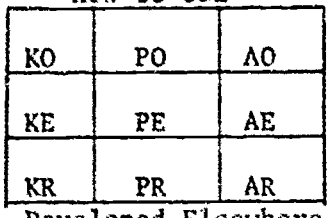
COMPONENT H Documented testing in at least one site of all materials developed.

COMPONENT I A transportability manual for inexperienced teachers or for teachers who have never been exposed to the modules.

A QUASI-LEGAL DEFINITION OF MODULE

According to USHEW, USOE, official documents and directives for technical specifications, MODULES should include the following:

COMPONENT	COMPONENT DESCRIPTION	MATRIX X-RAY
A	An overview of the subject matter area and its place in the instructional system under consideration	
B	Objectives stated in behavioral terms	
C	Content in the form of basic concepts and generalizations	
D	Teaching strategies and learning experiences, described in specific terms	

COMPONENT	COMPONENT DESCRIPTION	MATRIX X-RAY
E	Teaching aids	 (Teacher-centered)
F	Means of evaluation of student progress	
G	Student information sheets as needed to serve and support material to modules	 (Learner-centered)
H	Documented testing in at least one site of all materials developed	
I	A transportability manual for inexperienced teachers or for teachers who have never been exposed to the modules	HOW TO USE  Developed Elsewhere

THINGS TO LOOK FOR IN A MODULE

DATA ONE: Title

DATA TWO: Content areas covered

DATA THREE: Grade level

DATA FOUR: Target group addressed

DATA FIVE: A pinpointing of teacher materials and student materials

DATA SIX: Format

DATA SEVEN: Completeness with respect to five major aspects of curriculum development:

a. objectives
b. content
c. learning experiences and teaching strategies
d. teaching aids
e. evaluation

DATA EIGHT: Extent to which materials have been validated.

DATA NINE: Means of validation.

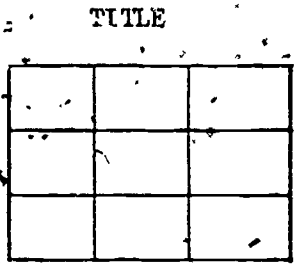
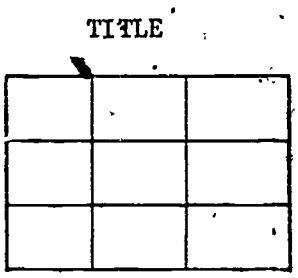
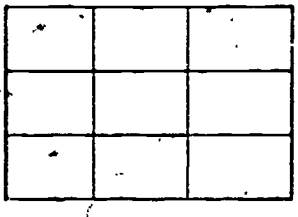
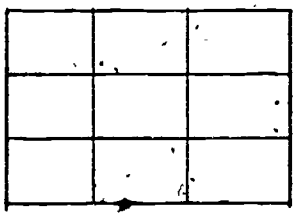
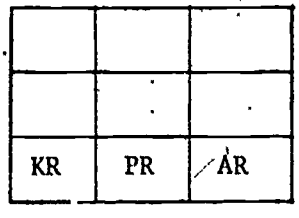
DATA TEN: Where and by whom the materials were developed.

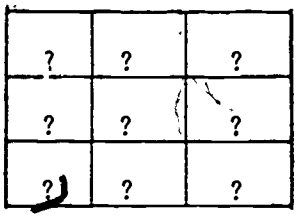
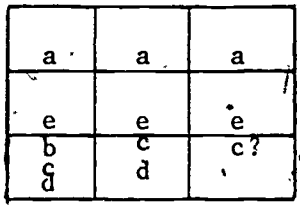
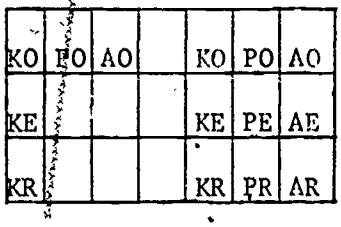
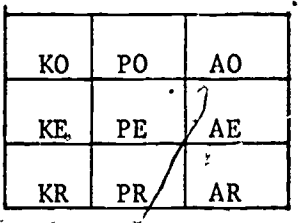
DATA ELEVEN: Sources of funds for development.

DATA TWELVE: Availability

DATA THIRTEEN: Cost

THINGS TO LOOK FOR IN A MODULE

DATA CODE	DATA DESCRIPTION	MATRIX X-RAY
1	Title	
2	Content area covered	
3	Grade level	
4	Target group addressed	
5	A pinpointing of teacher materials and student materials	

DATA CODE	DATA DESCRIPTION	MATRIX X-RAY
6	Format	
7	Completeness with respect to five major aspects of curriculum development: a. objectives b. content c. learning experiences and teaching strategies d. teaching aids e. evaluation	
8	Extent to which materials have been validated	
9	Means of validation	Evidence of how  helps learners

DATA CODE	DATA DESCRIPTION	MATRIX X-RAY
10	Where and by whom the materials were developed	Author and geographic origin of KO PO AO KE PE AE KR PR AR
11	Sources of funds for development	The investment in KO PO AO KE PE AE KR PR AR
12	Availability	Where to order KO PO AO KE PE AE KR PR AR
13	Cost	$ of KO PO AO KE PE AE KR PR AR

THE MODULES YOU NEED

SPEC	EXAMPLE	APPLICATION
The Right Fit	"Even though his shoe size was 9, he liked the comfort of 10 so much that he bought 2 pairs of size 11."	
The Right Digestion	"Finish your plate before you ask for seconds...."	
The Right Mileage	"Few SED researchers use more math than algebra 1 or more elementary statistics than covered in the 1st six hours."	
The Right Participants	"Last year, we did Shakespeare's As You Like it; we had 44 people on stage and 11 in the audience..."	

TEACHING-LEARNING OBJECTIVES

	DISSERTATION PARALLEL	APPLICATION
IRON CLAD CONTRACT	The dissertation proposal agreeable to both professor and researcher	
PERSONAL INVOLVEMENT	Questions to researcher are also answered by the professor of the joint research	
PUBLIC HEARING	Any community member may come to watch, question, criticize, praise, or contribute	
WRITTEN COMPONENT	Clear ideas, successful practices, and desirable attitudes are written out in a carefully edited text	
SUCCESS YARDSTICKS	The system serves professors and learners to the benefit of both	

FROM CAMPUS TO CAMPUS,

CUSTOMS CHANGE

CUSTOM	EXAMPLE	APPLICATION
The way we've always done it	No milk in the dining room of the Madras Hotel Only warm milk on the breakfast room service tray The special request	
The more you stylize, the more it costs	Three types of rings and frequencies: • Normal - ting-a-ling • Emergency - ring-ring • Urgent - LOUD-LOUD-LOUD The only catch U=8N¢	
1. Impose objectives 2. Inherit objectives 3. Implement objectives 4. Inaugurate objectives 5. Individualize instruction 6. Impact the budget	Participant made objectives Constant revision. Revolving curriculum Planning time Writing time No one is at zero (EXPECTANCY) All start at different levels. (GAINS SCORE)	

PHASES OF CURRICULUM DEVELOPMENT

PHASE	EXAMPLE	APPLICATION
DOCUMENT	"What is going on?" (E.g., what teachers teach and what learners learn.)	
DECISION	"What should be going on?" (E.g., for a specific employment level.)	
DEVELOPMENT	Many people spell CURRICULUM with "change." This means change for the sake of progress.	
DIRECTION	If talking and writing are the only activities, then distortion is present.	

DEVELOPING MODULES

PRINCIPLE	ANECDOTE	APPLICATION
One danger of do-it-yourself: QUALITY	The out of whack cuckoo Taken apart and repaired "What time is it?"	
One danger of team-work and common exchanges: INEQUALITY	A $300 final tribute for Rockie $100 - Tax Commissioner $100 - Health Commissioner $300 - Mental Health Check Some said $225 just in case	
One symptom of module indigestion: DOING-IT-ALONE	The Unfinished Symphony? The Task of Sisyphus? The Minute Waltz!!!	
One shortcoming of panaceas: EXCEPTIONS	The "new hat" that solves all emotional depressions The "stereotype" that doesn't map out the territory	

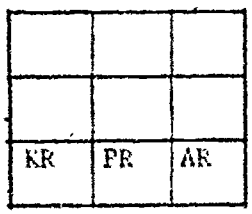
AVOIDABLE MODULE DANGERS

DANGER	EXAMPLE	APPLICATION
NO REINFORCEMENT	Pretest = 20% Posttest = 97% Followup test = 20%	
LESS HUMAN CONTACT	Before • 7 hours talking to students • friendship After • 8 hours talking to modules • impersonal contacts	
CONFUSABILITY	Teacher evaluate and teach Modules can't answer unanticipated questions	
MONOLITHISM	"Only one way to do it." "Experiment not" "Mass Production"	

RESULTS OF MODULES

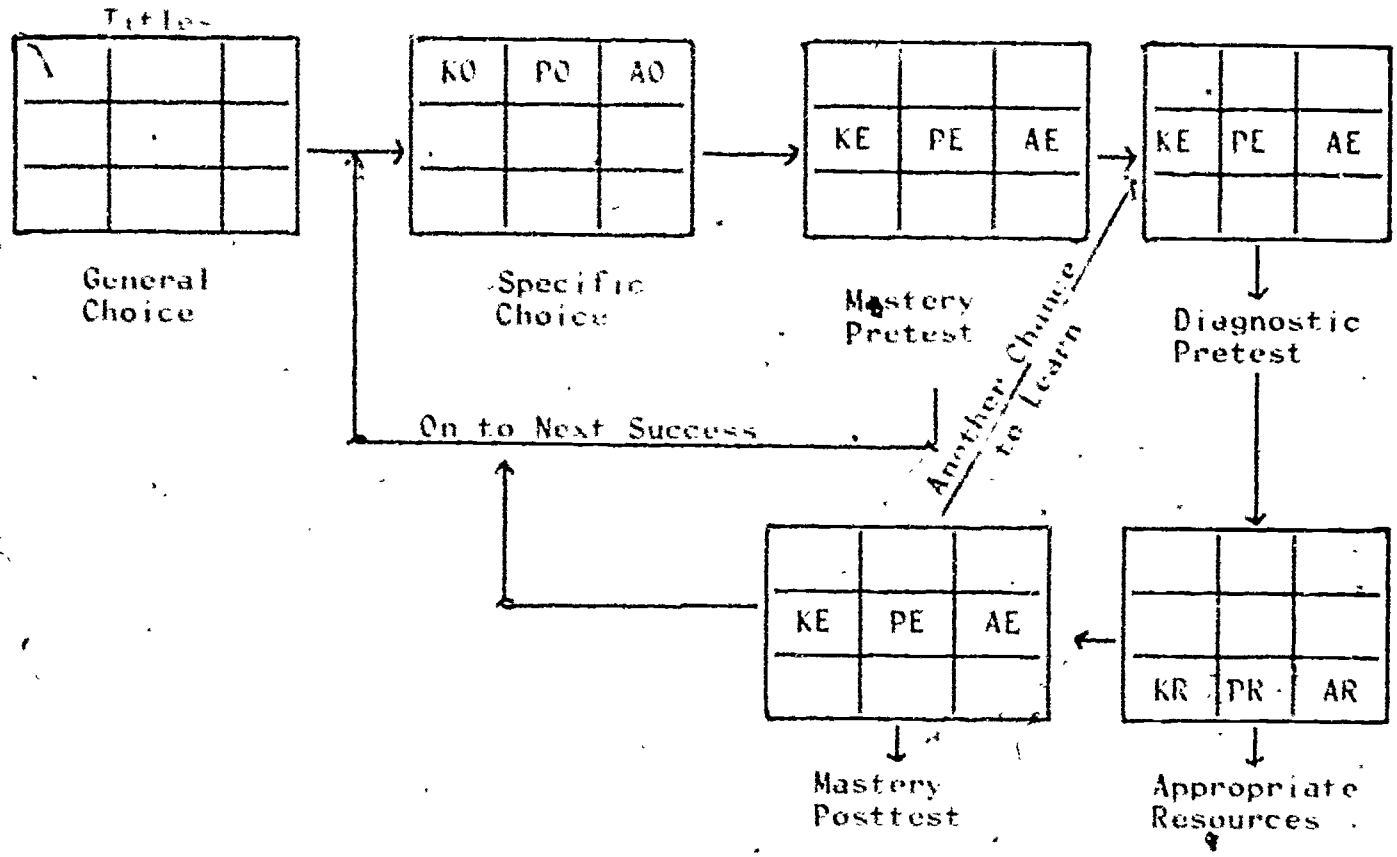
VISIBLE PRODUCT	EXAMPLE	APPLICATION
NEW VOCABULARY	What are you doing with all those little (micro) fish? Where to find it?	KO:
NEW REPERTOIRE	We switch over each evening from statistics to pipefitting. .. The leaky faucet, the new toilet bowl ..	PO:
NEW VALUES	Even birds must exercise before they can fly. When they fly, birds a) become independent b) do a lot on their own	AO:
NEW FORMAT	Technicality You must draw the line somewhere Phone call across the street	KO | PO | AO --- --- ---

PUTTING THINGS TOGETHER IN A WORKSHOP

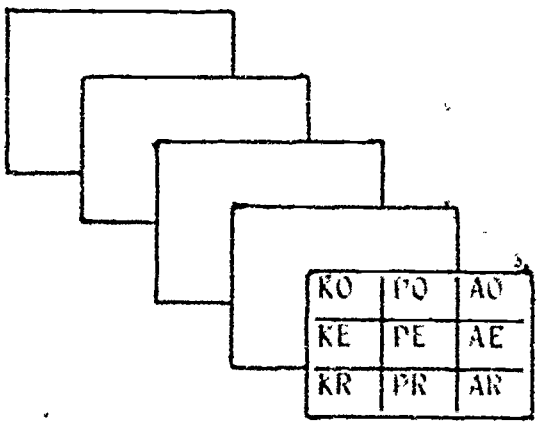
WORKSHOP ELEMENT	EXAMPLE	APPLICATION
CHOOSE AN URGENT ISSUE	Let your cold grow; get pneumonia instead There's no cure for the common cold. There are some cures for pneumonia	AR:
KEEP THINGS HAPPENING	Some workshop presenters - Keep things moving with enough discipline - Involve participants who develop original ideas - Provide quality control through professional judgment and consensus	PR:
SPACE THINGS OUT	Do we try to <u>jam</u> all we want to <u>say</u> into the available time? <u>or</u> Do we try to <u>do well</u> some of our priority activities in the available time?	KR:
OIL THE WHEELS	"Sam, why are you late for class?" "I had t walk and stop for the red lights!" Sam only lived a few blocks from school. He had to walk before he could run	

A TYPICAL NO FAIL MODULE SYSTEM

THE PATH



THE PARTS



The SUBparts

OBJECTIVES

OBJ 01 (MASTERY LEVEL)
OBJ 02 (BEGINNING LEVEL)
OBJ 03 (NEXT STEP AFTER BEGINNING)

EVALUATIONS (UNDER EACH OBJ)

EVAL 01 (MASTERY)(PRE)(POST)
EVAL 02 (DIAGNOSTIC)
EVAL 03 (PROGRESS)

RESOURCES (UNDER EACH OBJ)

RES 01 (GIANT STEPS)(ADVANCED PLACEMENT)
RES 02 (BABY STEPS)(REMEDIATION)
RES 03 (SMALL STEPS)
RES 04 (STYLE A)
RES 05 (STYLE B)
RES 06 (STYLE C)